

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A honeycomb structure comprising:

a plurality of honeycomb segments partitioned by partition walls and having a plurality of circulation holes penetrating in one axial direction; and

a bonding layer existing between the adjacent honeycomb segments for bonding the plurality of honeycomb segments,

wherein the bonding layer is formed by use of a bonding material including oxide fibers which satisfy the following relational expression (1),

$$0.5 \leq L \times (W / D) / 100 \leq 81.0 \leq L \times (W / D) / 100 \leq 7.3 \quad (1)$$

in which L is an average length (μm) of the oxide fibers in a longitudinal direction, D is specific gravity (g/cm^3) of the oxide fibers, and W is mass percentage of content (% by mass) of the oxide fibers in the entire bonding ~~material~~material,

wherein the average length L in the longitudinal direction of the oxide fibers is set in a range from 10 to 100 μm , and

W is set in a range from 10% to 50% by mass.

2. (Canceled)

3. (Currently Amended) A honeycomb structure according to claim 1,

~~wherein the average length L in the longitudinal direction of the oxide fibers is set in a range from 10 to 100 μm , and~~

wherein an average diameter d in a cross-section perpendicular to the longitudinal direction is set in a range from 1 to 20 μm .

4. (Currently Amended) A honeycomb structure according to claim 1,
wherein mass percentage of the oxide fibers having a shape defined as $0.5 \leq (\text{a diameter of a cross section perpendicular to the longitudinal direction}) / (\text{a length in the longitudinal direction}) \leq 1$ is set equal to or below 50% by mass in the oxide ~~fibers, fibers, and~~
~~the W is set in a range from 10% to 50% by mass.~~

5. (Original) A honeycomb structure according to claim 4,
wherein the mass percentage of the oxide fibers having the shape defined as $0.5 \leq (\text{the diameter of the cross section perpendicular to the longitudinal direction}) / (\text{the length in the longitudinal direction}) \leq 1$ is set equal to or below 10% by mass.

6. (Previously Presented) A honeycomb structure according to claim 1,
wherein the bonding material comprises:
inorganic particles; and
a colloidal oxide.

7. (Previously Presented) A honeycomb structure according to claim 1,
wherein heat conductivity of the bonding layer is set in a range from
0.1 to 5 W/m·K.

8. (Previously Presented) A honeycomb structure according to claim 1,
wherein the honeycomb segment comprises any of silicon carbide and a
silicon-silicon carbide compound material as a main ingredient.

9. (Withdrawn) method of manufacturing a honeycomb structure comprising the
steps of:
forming a plurality of honeycomb segments partitioned by partition walls and
having a plurality of circulation holes penetrating in one axial direction; and

bonding the plurality of honeycomb segments by use of a bonding material including oxide fibers which satisfy the following relational expression (1),

$$0.5 \leq L \times (W / D) / 100 \leq 8 \quad (1)$$

in which L is an average length (μm) of the oxide fibers in a longitudinal direction, D is specific gravity (g/cm^3) of the oxide fibers, and W is mass percentage of content (% by mass) of the oxide fibers in the entire bonding material.

10-14. (Canceled)